

What is claimed is:

1. A catheter assembly, comprising,
an elongated hollow anchoring catheter having a distal end,
and a tubular wall with inner and outer surfaces,
a hollow guiding catheter having a distal end and a proximal
end housing said anchoring catheter,
a first anchoring balloon member attached to the outer
surface of said tubular wall of the anchoring catheter
and adapted upon inflation to project outwardly from
said tubular wall to engage the guiding catheter and
secure said anchoring catheter within said guiding
catheter,
an elongated treatment catheter extending through an opening
in said tubular wall of said anchoring catheter and
having a distal end, and
a guide wire extending through the treatment catheter and
along which the treatment catheter is slidable.
2. The assembly of claim 1 wherein the opening in the
tubular wall of the anchoring catheter is a slit extending
between the distal end and the proximal end housing of the
anchoring catheter.
3. The assembly of claim 2 wherein a guide member is
slidably mounted on the anchoring catheter and facilitates
the insertion of the balloon dilatation catheter through the
slit.
4. The assembly of claim 2 wherein the slit has a means
for releasably sealing the slit.
5. The assembly of claim 1 further comprising a second
anchoring balloon member attached to the inner surface of

said tubular wall and adapted upon inflation to project inwardly from said tubular wall of the anchoring catheter to engage and retain the treatment catheter against movement with respect to said anchoring catheter.

6. The assembly of claim 5 further comprising a means associated with the catheter assembly for independently inflating and deflating the first and second anchoring balloon members.

7. The assembly of claim 1 further comprising a third anchoring balloon member attached to the outer surface of the tubular wall of the anchoring catheter and adapted upon inflation to project outwardly to engage the blood vessel and secure the anchoring catheter to the blood vessel, and whereby upon inflation of the first and third balloon members the guiding catheter is operatively secured to the blood vessel.

8. The assembly of claim 7 wherein blood by-pass means are located in said tubular wall on opposite sides of at least one of said first or third anchoring balloon members.

9. A catheter assembly, comprising:
a hollow anchoring catheter extendible through a guiding catheter;
a treatment catheter extendible through an opening in the tubular wall of the anchoring catheter; and
an external balloon attached to the anchoring catheter and adapted to expand radially outwardly upon inflation to engage the blood vessel wall and fix the anchoring catheter against movement relative to the blood vessel.

10. The catheter assembly of claim 10 further comprising an internal balloon attached to the anchoring catheter adapted to expand radially inwardly upon inflation to engage the treatment catheter and fix the anchoring catheter against movement relative to the dilatation catheter.

11. The assembly of claim 9 wherein the opening in the tubular wall of the anchoring catheter is a slit extending between the distal end and the proximal end housing of the anchoring catheter.

12. The assembly of claim 11 wherein a guide member is slidably mounted on the anchoring catheter and facilitates the insertion of the balloon dilatation catheter through the slit.

13. The assembly of claim 11 wherein the slit has a means for releasably sealing the slit.

14. A method for performing angioplasty, comprising:
inserting a guide wire through a treatment catheter to form
a treatment catheter assembly;
inserting the treatment catheter assembly through an opening
in a tubular wall of an anchoring catheter to form a
unit;
inserting a guiding catheter into a patient such that the
distal end of the guiding catheter is inserted into the
origin of the patient's artery;
inserting the unit through the guiding catheter;
extending the anchoring catheter partially out of the
guiding catheter and into the blood vessel;

inflating an external balloon attached to the anchoring catheter to secure the anchoring catheter to the within the blood vessel;

sliding the treatment catheter through the opening in the tubular wall of the anchoring catheter and along the guide wire until a treatment element disposed on the treatment catheter is adjacent a plaque area of the blood vessel;

actuating the treatment element to treat the plaque area of the blood vessel.

15. The method of claim 14 further comprising deflating the external balloon and withdrawing the treatment catheter, guide wire, anchoring catheter and guiding catheter from the patient.

16. The method of claim 14 wherein the opening in the tubular wall of the anchoring catheter is a slit extending between the distal end and proximal end housing of the anchoring catheter.

17. The method of claim 16 wherein a guide member is slidably mounted on the anchoring catheter and facilitates the insertion of the treatment catheter through the slit.

18. The method of claim 16 wherein the slit has a means for releasably sealing the slit.